

LISTING OF CLAIMS

Claim 1 (currently amended): A solid source method of growing a SiC film within an MBE system having a growth chamber and effusion cells having shutters, comprising the steps of:

charging a first crucible with a quantity of Fullerenes;
installing said first crucible into a first effusion cell;
placing said first effusion cell into the growth chamber;
coating a second crucible with a layer of SiC;
charging said second crucible with a quantity of solid Si;
installing said second crucible into a second effusion cell;
placing said second effusion cell into the growth chamber;
providing a SiC substrate;
preparing said substrate;
loading said substrate into the growth chamber;
evacuating the growth chamber;
heating said substrate;
heating said first effusion cell;
heating said second effusion cell; and,
growing a homoepitaxial layer of SiC upon said substrate by controllably actuating the effusion cell shutters.

Claim 2 (original): The method of claim 1 wherein said substrate is heated to a temperature of about 1500° C.

Claim 3 (original): The method of claim 1 wherein said first effusion cell is heated to a temperature range of about 500° C to 650° C.

Claim 4 (original): The method of claim 1 wherein said second effusion cell is heated to a temperature above about 1500° C.

Claim 5 (original): The method of claim 1 wherein said substrate is prepared by chemical-mechanical polishing.

Claim 6 (currently amended): A solid source method of growing a SiC film within an MBE system having a growth chamber and effusion cells having shutters, comprising the steps of:

charging a first crucible with a quantity of Fullerenes;
installing said first crucible into a first effusion cell;
placing said first effusion cell into the growth chamber;
coating a second crucible with a layer of SiC;
charging said second crucible with a quantity of solid Si;
installing said second crucible into a second effusion cell;
placing said second effusion cell into the growth chamber;
providing a SiC substrate;
polishing said substrate;
cleaning said substrate with pressurized CO₂;
etching said substrate;
rinsing said substrate;
drying said substrate with pressurized N₂;
loading said substrate into the growth chamber;
evacuating the growth chamber;
heating said substrate to a temperature of about 1500° C;
heating said first effusion cell to a temperature range of about 500° to 650° C;
heating said second effusion cell to a temperature above about 1500° C; and,
growing a homoepitaxial layer of SiC upon said substrate by controllably actuating
the effusion cell shutters.

A1 end